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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,282	08/15/2001	Finn Wredenhagen	1020457.0012	8113

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EXAMINER	
LE, BRIAN Q	
ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/929,282	WREDENHAGEN ET AL.	
	Examiner	Art Unit	
	Brian Q. Le	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Finality of the Office Action

1. The Finality of the Office Action is withdrawn because the Examiner unintentionally repeated the substance of the 35 U.S.C. 102(e) rejection of claim 18.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 7-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Takahashi U.S. Patent No. 6,665,439 and further in view of Dube et al. U.S. Patent No. 6,782,143.

Regarding claim 7, Takahashi teaches an interpolator (column 18, lines 55-60), comprising:

A feature extractor (extracting outlines of objects/edge) (column 4, lines 45-50) to populate a feature table (populate/generate arrays of numeric values for edge vector) (column 5, lines 33-44) by identifying image features in a pixel array (the process of determining object's edge in a pixel's array) (column 5, lines 35-44);

A feature comparator to populate a match table by matching features in the feature table (comparing edges of the modulus edge vector base on RGB color features and tables) (column 5, lines 5-30; column 12, lines 30-36; and column 20, lines 41-59).

Takahashi teaches means for generating a target pixel (abstract). Takahashi does not teach the target pixel is interpolated from the pixel array. Dube teaches an interpolation method (abstract) further generating a target pixel, the target pixel interpolated from the pixel array (column 3, lines 18-22). Modifying Takahashi's method of teaching an interpolator according to Dube would be able to utilize different interpolation techniques in interpolating pixels of the image (FIG. 10). This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Takahashi according to Dube.

For claim 8, Takahashi also teaches the interpolator where the image features are edges (abstract).

Referring to claim 9, Takahashi discloses the interpolator where the feature extractor is adapted to be programmable (extracted features are stored) (column 11, lines 35-45).

Regarding claim 10, Takahashi also discloses the interpolator where the image features is adapted to dynamically change according to user preference (a process wherein an operator can adjust/set image features such as hue/saturation/intensity (column 20, lines 54-58; column 23, lines 6-17).

For claim 11, Takahashi shows the interpolator where the feature extractor includes a state machine for each image feature (processing/operating sequences of the machine/apparatus) (FIG. 1, elements 21-24; column 31, lines 34-35; and column 34, line 16).

As to claim 12, Takahashi also shows the interpolator where the feature comparator is adapted to match image features in adjacent rows of the pixel array (FIG. 2).

Also to claim 13, Takahashi further shows the interpolator where the feature comparator is adapted to match image features in adjacent columns of the pixel array (FIG. 2).

For claim 14, Takahashi teaches the interpolator comprising an alignment controller to align matched image features in the match table (arrange pixels base on RGB values of RGB vectors of the table) (column 12, lines 25-36 and column 20, lines 41-58).

Regarding claim 15, Takahashi shows the interpolator where the alignment controller is adapted to compute relative shifts between adjacent rows or columns (column 13, lines 20-37).

Referring to claim 16, Takahashi teaches the interpolator where the alignment controller is adapted to identify a transition segment (the changes between edge strength from weak to strong) (FIG. 9A).

Also to claim to 17, Takahashi also teaches the interpolator where the alignment controller is adapted to identify a pivot pixel (centered/strong pixel) (FIG. 9A).

For claim 18, please refer back to claim 1 for further teachings and explanations.

For claims 19-28, please refer back to claims 8-17 respectively for the teachings and explanations.

Regarding claim 29, Takahashi teaches the interpolator where the feature table includes a plurality of pairs of numbers, a first number in the pair defining a start position and second number in the pair defining an intensity for each of the image features identified (a concept of vector set comprises pair of points a_i, c_i, where a is reference to the intensity values of color of image and c is reference to coordinate value/start position) (column 19, line 25 to column 20, line 35).

Referring to claim 30, Takahashi teaches the interpolator where the feature comparator is adapted to match like features in adjacent rows or columns of the feature table (matching in surrounding adjacent pixels or regions) (abstract and FIG. 37, element 72).

For claim 31, Takahashi teaches the interpolator where, after a first row of pixel data (adjacent pixels generate a row of pixel) (FIG. 11, element 1002), the feature comparator is adapted to populated the match table at about the same time as the feature extractor populates the feature table (the continuing processing of updating edge vector while the moduli of the edge vector is matching) (FIG. 11 and column 16, lines 35-67).

Regarding claims 32-34, please refer back to claims 29-31 for further teachings and explanations.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian Le
April 24, 2007